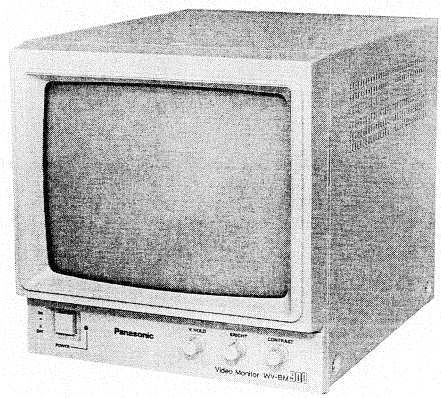
ORDER NO.AVS9310784C8

Service Manual

Video Monitor

WV-BM900



SPECIFICATIONS

Power Source :	WV-BM900/A, WV-BM900/B, WV-BM900/G: 220 - 240 V AC, 50Hz/12V DC, 2A
Power Consumption :	Approx. 29W
Screen Size :	8-9/16" (diagonal actual measured) 90° deflection
Video Input Impedance :	75-ohm or high impedance
Video Input Level :	1.0Vp-p
Horizontal Resolution :	More than 750 lines (Horizontal at centre)
Horizontal Scanning Frequency :	15.625kHz
Vertical Scanning Frequency :	50Hz
Sweep Linearity :	Horizontal : Less than 5% Vertical : Less than 5%
Ambient Operating Temperature:	–10°C - +50°C (14°F - 122°F)
Dimensions :	220 (W) x 227.5 (H) x 259 (D) mm (8-11/16" (W) x 8-15/16" (H) x 10-3/16" (D))
Weight :	4.5 kg (9.9lbs.)

Weights and dimensions shown are approximate.
Specifications are subject to change without notice

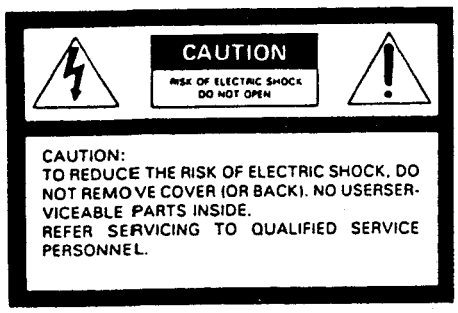
STANDARD ACCESSORY

AC Power Cord	1 pc.
DC Power Cord	1 pc.

OPTIONAL ACCESSORY

Rack Mount Kit	WV-Q28

Panasonic


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USERSERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol warns the user that uninsulated voltage within the unit may have suificient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included.
Therefore, it should be read carefully in order to avoid any problems.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are indicated by the "⚠" mark on the schematic diagram and the replacement parts list. It is essential that these critical parts should be repleced with manufacture's specified parts to prevent shock, fire, or other hazards.
Do not modify the original design without permission of manufacture.

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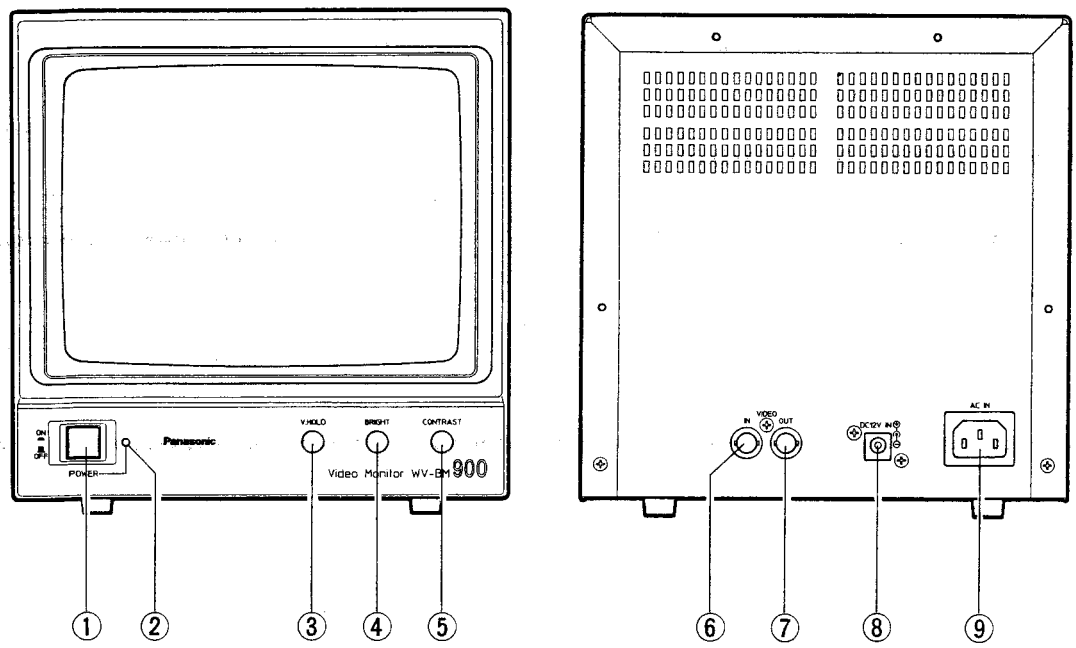
MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



1. Power On/Off Switch (POWER, ON/OFF)

This is a push-push type switch which turns the power of this monitor on and off.

Press once and the switch remains down (▬) for turning on the power of monitor.

Press again, the switch comes up (▙) for turning off the power of the monitor.

Note:

When the DC power is supplied to this monitor, this switch is not functioned.

2. Power Indicator

By turning on the Power On/Off Switch (1), this indicator lights.

Note :

When the DC power is supplied, this indicator lights without turning on the Power On/Off switch (1).

3. Vertical Hold Control (V-HOLD)

This control is used to lock in the picture vertically.

4. Bright Control (BRIGHT)

Turn this control clockwise to increase the picture brightness.

5. Contrast Control (CONTRAST)

Turn this control clockwise to increase the picture contrast.

6. Video Input Connector (VIDEO IN)

This connector accepts the input video signal.

7. Video Output Connector (VIDEO OUT)

The video input signal connected to the Video Input Connector (9) is looped through to this connector and terminated automatically.

8. DC Input Connector (DC 12V IN)

Be sure to use 10.8 - 16V at more than 2A.

Note :

Do not use this connector with AC Input Connector (9) simultaneously.

9. AC Input Connector (AC IN)

This connector is used to connect the AC Power Cord.

Note :

Do not use this connector with DC Input Connector (8) simultaneously.

CIRCUIT DESCRIPTION

1. Video Amplifier Circuit

The video signal is applied to the base of Q301(BUFFER) through connector CN302.
The video signal is obtained at the emitter of Q301(BUFFER), is fed to VR301 (CONTRAST) and the pin 15 of IC501(H.V.DEFLECTION) to generate the vertical deflection sawtooth and the horizontal deflection sawtooth signals. Then controlled video signal is sent to the base of Q302 (AMPLIFIER), and amplified video signal is then sent to the base of Q304 (BUFFER). The clamp signal is applied to the base of Q304 to clamp the blanking period. The clamped video signal is sent to the base of Q309(AMPLIFIER). Then video signal is applied to the K (cathode) of CRT.

2. Vertical Deflection Circuit

This circuit generates the vertical deflection sawtooth current for vertical scanning of the beam inside the CRT.
The video signal from the video amplifier circuit is fed to pin 15 of IC501 through C413 and R415(L.P.F.).
The vertical sawtooth signal is obtained at pin 8 of IC501 is fed to the vertical deflection coil.
The vertical sawtooth signal at pin 8 of IC501 is integrated by VR403(V.LIN), C410 and R409, and converted into a vertical parabola signal. This signal is fed back to the sawtooth generator inside IC501 through pin 6 of IC501 for linearity correction.
VR401(V.HOLD) is a control for vertical hold, VR402 (V.HEIGHT) for vertical scanning size, VR403 (V.LIN) for vertical linearity.
The vertical deflection signal is also fed to the base of Q308 (BLANKING) and cut off the beam during vertical blanking period.

3. Horizontal Deflection Circuit

This circuit generates the horizontal deflection sawtooth current for horizontal scanning of the beam inside the CRT.
This circuit contains automatic frequency control (AFC) circuit which controls the frequency (phase) of the horizontal sawtooth current to correspond to that of horizontal sync pulse separated video signal.
The video signal is applied to pin 15 of IC501 to produce horizontal (H) sync pulse. The flyback pulse is obtained at pin 3 of T502 (flyback transformer) is fed to the integrator consisting of C509 and R506, and converted into a horizontal sawtooth signal.
The horizontal sawtooth signal is supplied to pin 14 of IC501 through C508 to compare with the horizontal sync pulse in phase.
The DC voltage corresponding to the phase difference is fed to the horizontal oscillator (H.OSC) inside of IC501 through pin 14 and pin 13 to control the its oscillation frequency.
In this way, the H.OSC is automatically controlled to match its oscillation frequency with that of sync pulse.
VR501 (H.HOLD) is a control for setting the oscillation frequency in a stable state.
frequency controlled horizontal pulse from the H.OSC is then fed to pin 3 of T502 (high voltage circuit).
The horizontal deflection current is supplied to the horizontal deflection coil from pin 9 of IC501 through Q502, T501, Q501, C518, L501.
L501 (H.WIDTH) is a control for horizontal scanning size.
The flyback pulse at the collector of Q501 is supplied to the high voltage circuit.
The flyback pulse at the collector of Q501 is also fed to the base of Q308 (BLANKING) and cut off the beem during horizontal blanking period.

4. High Voltage Circuit

The flyback pulse is obtained at the collector of Q501 is applied to the primary winding (pin 3) of flyback transformer (T502) to boost the flyback pulse to necessary level.
The boosted pulses are obtained at the secondary winding of T502 is rectified to generate high voltage.
8kV obtained by rectifying the boosted pulse with multiplier in T502 is supplied to the anode of the CRT.
+90V DC voltage is obtained by rectifying the boosted pulse from pin 7 of T502 with D502 is supplied to the collector of Q309 (AMPLIFIER) as a power supply.
+400V DC is obtained by rectifying the boosted pulse from pin 9 of T502 with D503 is supplied to grid-2 (G2) of the CRT.

ADJUSTMENT PROCEDURE

1. Test Equipment Required

The following equipment is required for adjustment of WV-BM900.

- Digital Voltmeter
- Completely aligned Black and White camera
- Frequency Counter
- Resolution chart (YWV1400RB99)

2. Disassembling Procedure for Adjustment

- Remove ten screws holding the rear cover and remove the rear cover. (Fig. 2-1)

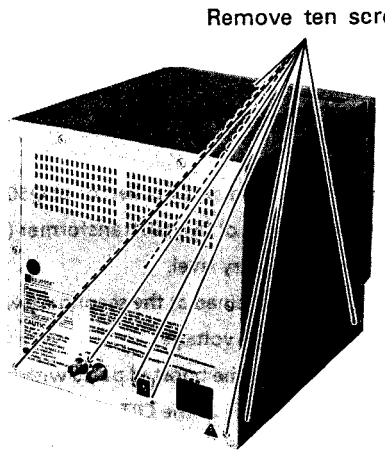


Fig. 2-1

- Remove four screws holding Main Board. (Fig. 2-2)
- Remove one screw on ground terminal tied to chassis. (Fig. 2-2)

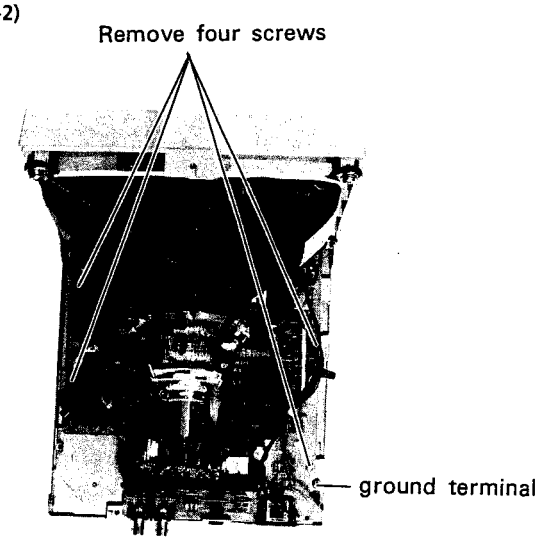


Fig. 2-2

- Slide the main board and remove the LED board from the front panel. (Fig. 2-3)

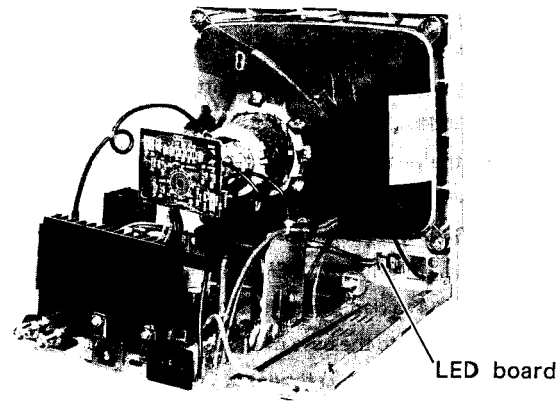


Fig. 2-3

- Turn the main board and tighten the ground terminal to the chassis as shown below. (Fig. 2-4)

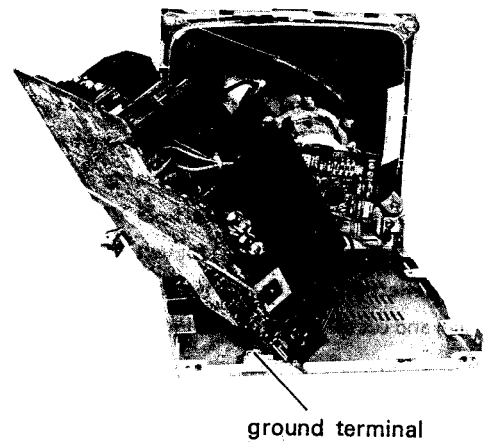


Fig. 2-4

3. Connection and Setting up for Adjustment

- Connect the coaxial cable between the Video Output terminal of B/W Camera and VIDEO IN Connector of Video Monitor WV-BM900.

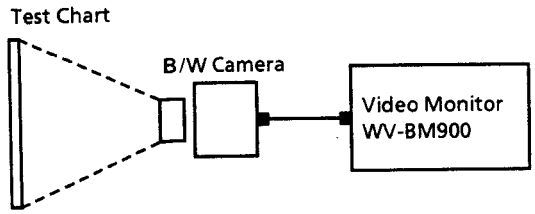


Fig. 3-1

4. Adjustment

(1) B^+ Voltage Confirmation

- Turn on the power switch of Video Monitor WV-BM900.
- Connect the digital voltmeter to TP201 on the Main Board and confirm the voltage is 9V ± 0.3V.
- Connect the digital voltmeter to pin 3 of IC502 on the Main Board and confirm the voltage is 12V ± 0.5V.

(2) Horizontal Hold Adjustment

Test point :	**H^+ Terminal**	**Deflection Yoke Board**
Adjust :	**VR501 (H. HOLD)**	**Main Board**

- Disconnect the camera cable from the VIDEO IN connector on the rear panel.
- Connect the frequency counter to H+ terminal on the Deflection Yoke Board.
- Adjust VR501 (H. HOLD) on the Main board so that frequency at H+ terminal becomes 15.500 KHz ± 50 Hz.
- Connect the camera cable to the VIDEO IN connector on the rear panel.

(3) Sub-Brightness Adjustment

Adjust :	**VR602 (SUB.BRIGHT)**	**CRT Socket Board**

- Aim the camera at the resolution chart.
- Set the controls on the main board (Front Panel) as follows.

Contrast Control (VR301) :	Fully counterclockwise
Bright Control (VR302) :	Centre position

- Adjust VR602 (SUB.BRIGHT) on the CRT socket board so that raster on the monitor just disappeared.

(4) Picture Tilt Adjustment

Adjust :	**Deflection Yoke.**

- Aim the camera at the resolution chart.
- Loosen the screw holding the deflection yoke. (Fig. 4-1)
- Turn the deflection yoke until the raster on the monitor screen straight.
- Carefully tighten the screw to hold the deflection yoke.

(5) Centring and Horizontal Width Adjustment

Adjusts :	**Centreing Magnets**	**Deflection Yoke**
	L501 (H.WIDTH)	**Main Board.**

- Aim the camera at the resolution chart.
- Set the controls on the main board (front panel) as follows.

Contrast Control (VR301) :	Centre position
Bright Control (VR302) :	Centre position

- Adjust the centring magnets until the raster comes to the centre of monitor screen. (Fig. 4-1)

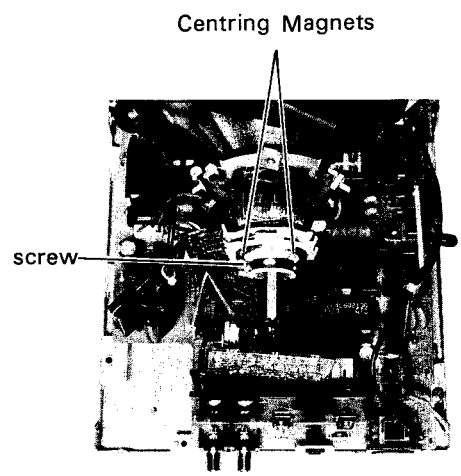


Fig. 4-1

- Adjust L501 (H.WIDTH) so that circle of the resolution chart on the monitor screen becomes true circle.

(6) Vertical Height and Vertical Linearity Adjustment

Adjusts : **VR402 (V. HEIGHT)** **Main Board**
VR403 (V. LIN) **Main Board**

- Aim the camera at the resolution chart.
- Set the controls on the main board (Front panel) as follows.

Contrast Control (VR301) : Centre position
Bright Control (VR302) : Centre position

- Adjust VR402 (V.HEIGHT) and VR403 (V.LIN) so that the circle of resolution chart becomes true circle.

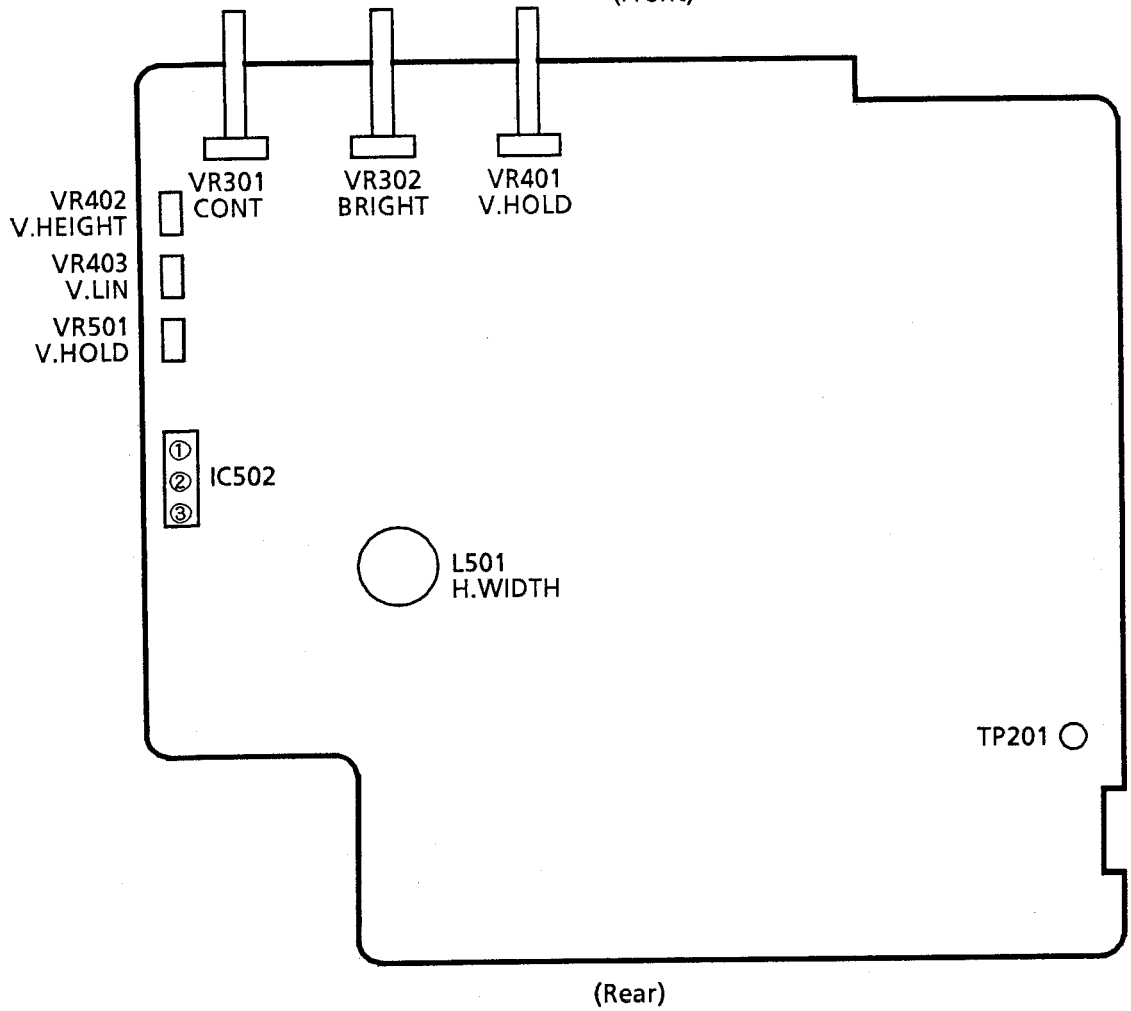
(7) Focus Adjustment

Adjust : **VR601 (FOCUS)** **CRT Socket Board**

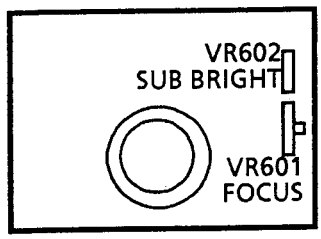
- Aim the camera at the resolution chart.
- Adjust VR601 (FOCUS) on the CRT Socket Board so that picture on the monitor screen becomes best focus.

LOCATION OF TEST POINTS AND ADJUSTING CONTROLS

■ Main board



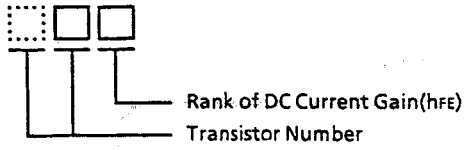
■ CRT Socket board



CHIP COMPONENTS

1. Chip Transistor

The transistor number is indicated on the top surface of the chip transistor using two alphabet letters or one numerical and two alphabet letters.



Transistor Number

(Chip Transistor)

Letter	Transister No.	Letter	Transister No.
A	2SB709	X	2SD602A
B	2SB709A	Y	2SD601
C	2SB710	Z	2SD601A
D	2SB710A	1A	2SB799
E	2SA1022	1B	2SB814
F	2SA1034	1C	2SB902
H	2SA1035	1F	2SK321
I	2SB792	1K	2SK316
K	2SC2778	1L	2SK247
P	2SD814	1M	2SJ84
Q	2SD813	1N	2SK199
R	2SC2480	1O	2SK198
S	2SC2405	1T	2SC3077
T	2SC2406	1X	2SC2845
U	2SC2404	1Z	2SD1030
V	2SC2295	2B	2SK374
W	2SD602	2C	2SK116
BQ	2SB766A	UMT	2SC4081

(Small Chip Transistor)

Letter	Transister No.
A	2SB1218
U	2SC3931
W	2SD1820
Y	2SD1819
E3	2SA1226
OS	2SB1219
UC	2SA1532
YU	2SC3938

(Pair Transistor)

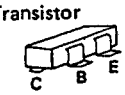
Letter	Transister No.
5C	XN4601
5N	XN6501
5O	XN6401
5H	XP4501
5C	XP4601

Example :

WQ ⟶ 2SD602 - Q
YQ ⟶ 2SD601 - Q
1BS ⟶ 2SB814 - S

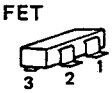
Appearance and Symbols

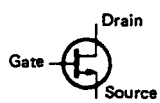
Transistor



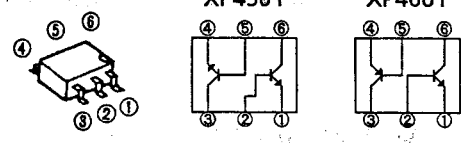
C: Collector
B: Base
E: Emitter

FET



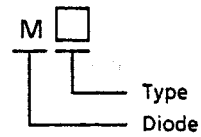


	1	2	3
Except 2SK199	Drain	Source	Gate
2SK199	Gate	Drain	Source



2. Chip Diode

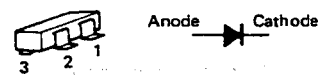
The diode number is indicated on the top surface of the chip diode using Two alphabet letters.



Diode Number

Letter	Diode No.	Letter	Diode No.
MA	MA151A	MI	MA152K
MB	MA152A	MK	MA28W-B
MC	MA153	ML	MA28T-A
MD	MA28-A	MN	MA151WA
ME	MA28-B	MO	MA152WA
MF	MA28W-A	MT	MA151WK
MH	MA151K	MU	MA152WK
MH	MA141K	6.2	MA3062
MC	MA143	SMD	RB421D

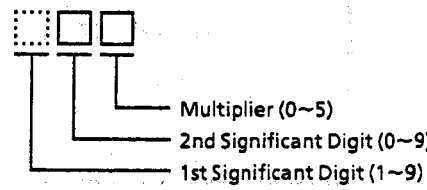
Appearance and Symbols



	1	2	3
MA28/MA28W/MA28T	-	Anode	Cathode
MA151K/MA152K	-	Anode	Cathode
MA151A/MA152A	-	Cathode	Anode
MA151WK/MA152WK	Anode	Anode	Cathode
MA151WA/MA152WA	Cathode	Cathode	Anode
MA153	Cathode	Anode	Common
MA141K	-	Anode	Cathode
MA143	Anode	Cathode	Common
MA3062	Anode	-	Cathode
RB421D	Anode	-	Cathode

3. Chip Resistor

The resistor value is indicated on the bottom surface of the chip resistor using three digit numbers.



Example :

330 ⟶ 33×10^0 = 33 ohms
561 ⟶ 56×10^1 = 560 ohms
123 ⟶ 12×10^3 = 12 ohms

Note : Zero ohm resistor (jumper chip) is colored red or green.

4. Chip Capacitor

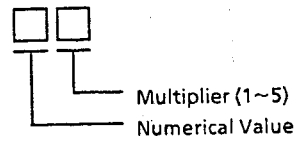
The capacitive value of replacement chip capacitors is indicated on the bottom surface. Original parts do not have value indication.

If the capacitive value is less than 100 pF, the value will be indicated by one or two digit number expressing the capacity directly in pF.

Example :

0.5	→ 0.5 pF	2.5	→ 2.5 pF
75	→ 0.75 pF	33	→ 33 pF
1	→ 1 pF	82	→ 82 pF

If the capacitive value is 100 pF or greater, the value will be indicated by an alpha-numeric code. The letter precedes the number and expresses a numerical value to be multiplied by the number which follows.



Numerical Value

Letter	Value	Letter	Value
A	10	N	33
B	11	P	36
C	12	O	39
D	13	R	43
E	15	S	47
F	16	T	51
G	18	U	56
H	20	V	62
J	22	W	68
K	24	X	75
L	27	Y	82
M	30	Z	91

*Letters I and O are not used

Example :

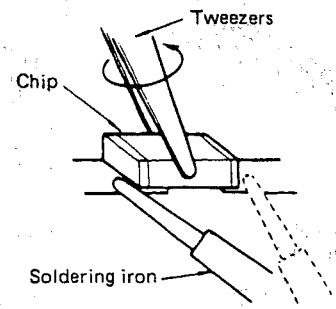
A1	→	$10 \times 10^1 = 100$ pF
N2	→	$33 \times 10^2 = 3300$ pF
S3	→	$47 \times 10^3 = 47000$ pF

5. Precautions in replacing the chip component

1. Make sure that the unit is turned OFF when replacing the chip.
2. Use tweezers to prevent any damage to the chip surface.
3. Do not re-use the chips after removal.
4. Do not rub the electrode of chips.
5. Do not subject the chips to excessive stress.
6. It is recommended that a pencil-type soldering iron to be used.
7. The solder whose diameter is less than 0.5 mm is recommended.
8. Do not heat the chip beyond 3 seconds.
9. Maintain temperature control under 260°C (500°F) when soldering.

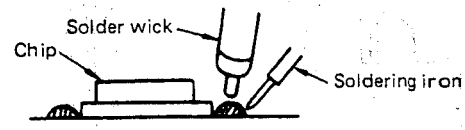
5-1 Removal (Transistor, Diode, Resistor and Capacitor)

1. Add the solder to both ends of the chip (three leads for chip transistor).
2. While attaching the soldering iron to both ends of the chip (three leads for chip transistor) as shown below, remove the chip by turning it with tweezers.
   Note : Be careful not to damage other chips.

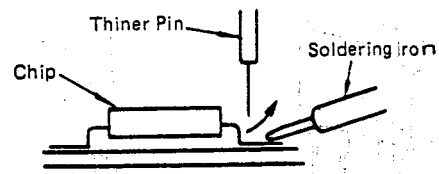


5-2 Removal (IC)

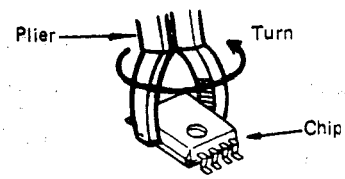
1. Add the solder wick and solder iron to each lead of the IC and remove solder.



2. Add the solder iron to each lead of the IC and left each lead of the IC using thiner pin.

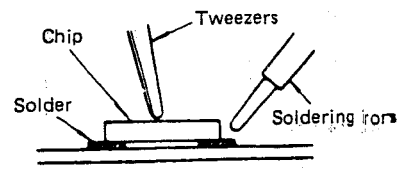


3. Remove IC turning it with plier.

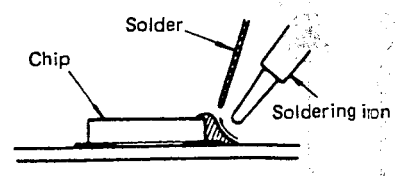


5-3 Mounting

1. Place the solder thinly on the chip mounting foil.
2. Solder the chip temporarily while holding the chip with the tweezers.

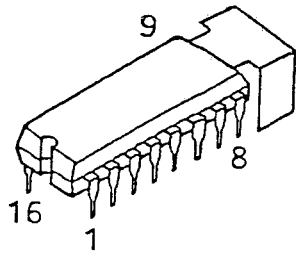


3. Solder both ends of chip (three leads for chip transistor).

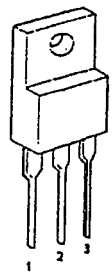


APPEARANCE OF IC, TRANSISTOR AND DIODE

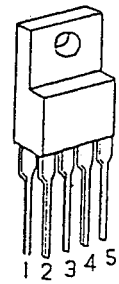
YWUPC1379C



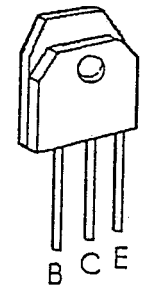
AN7812



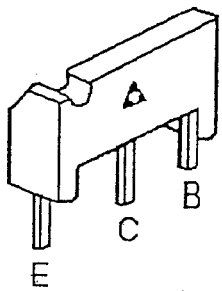
YWSI3090C



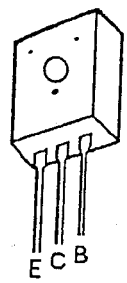
2SC4429-L



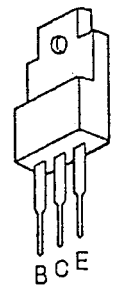
2SB641-QR
2SD636-QRS



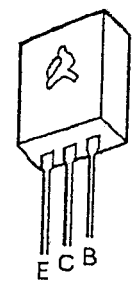
2SC2258



2SD1274B



2SC1567-RS



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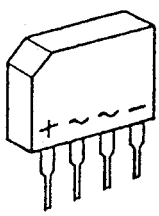

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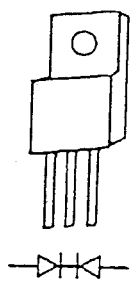

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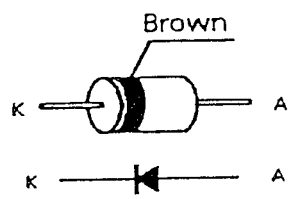
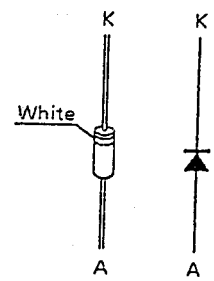
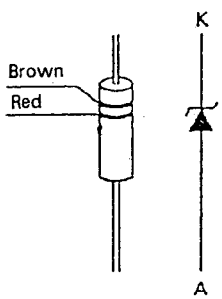


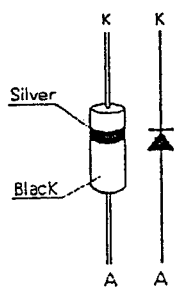
MA165



MA4120H



EM01Z
ES01F
EU02ZV0



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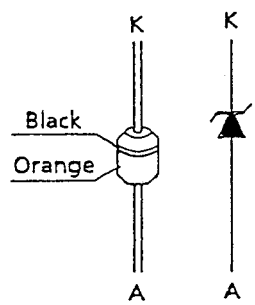
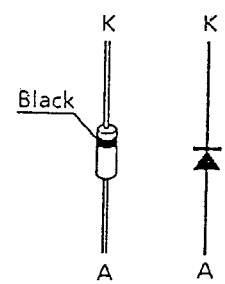


HER103T



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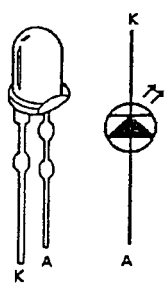

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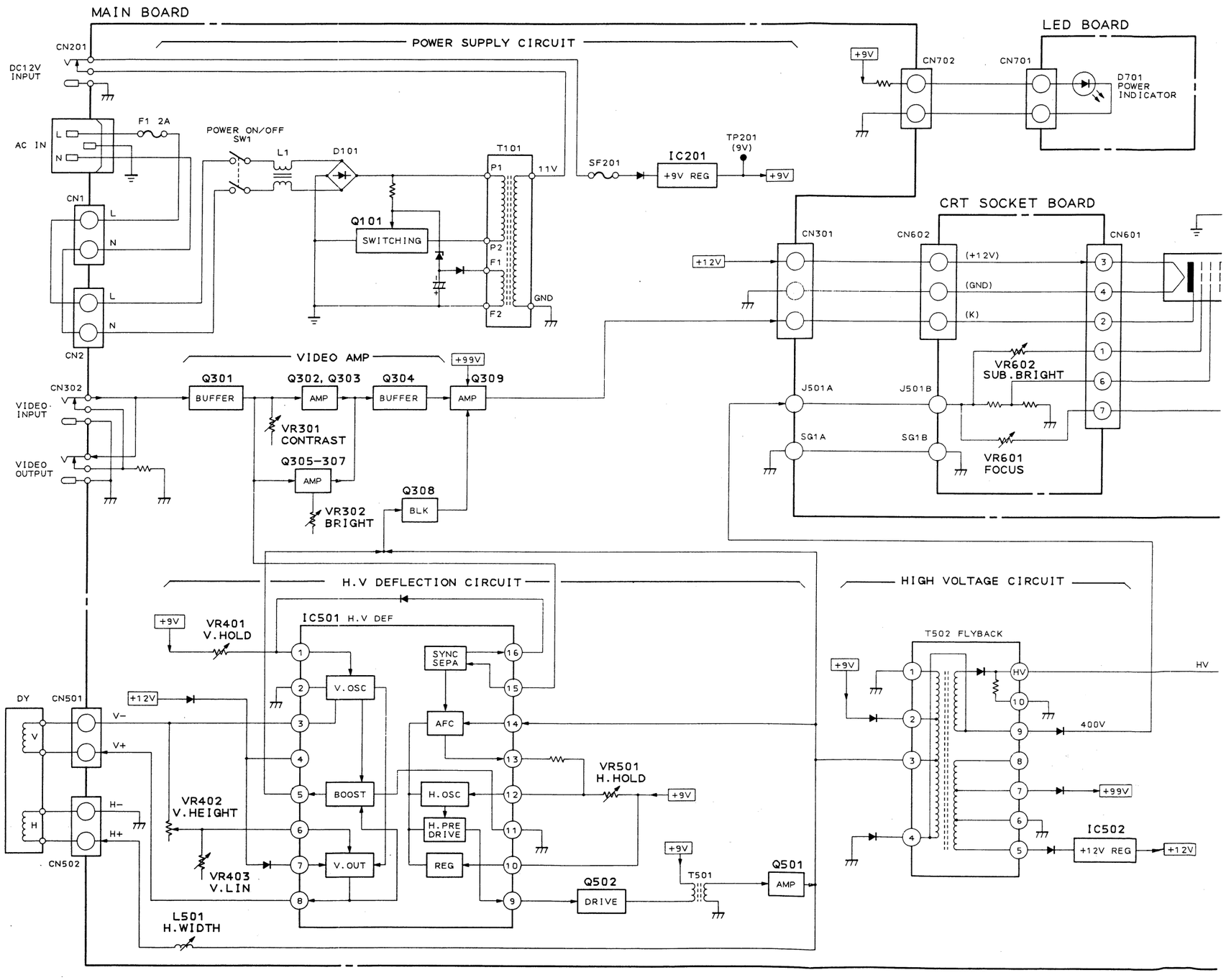
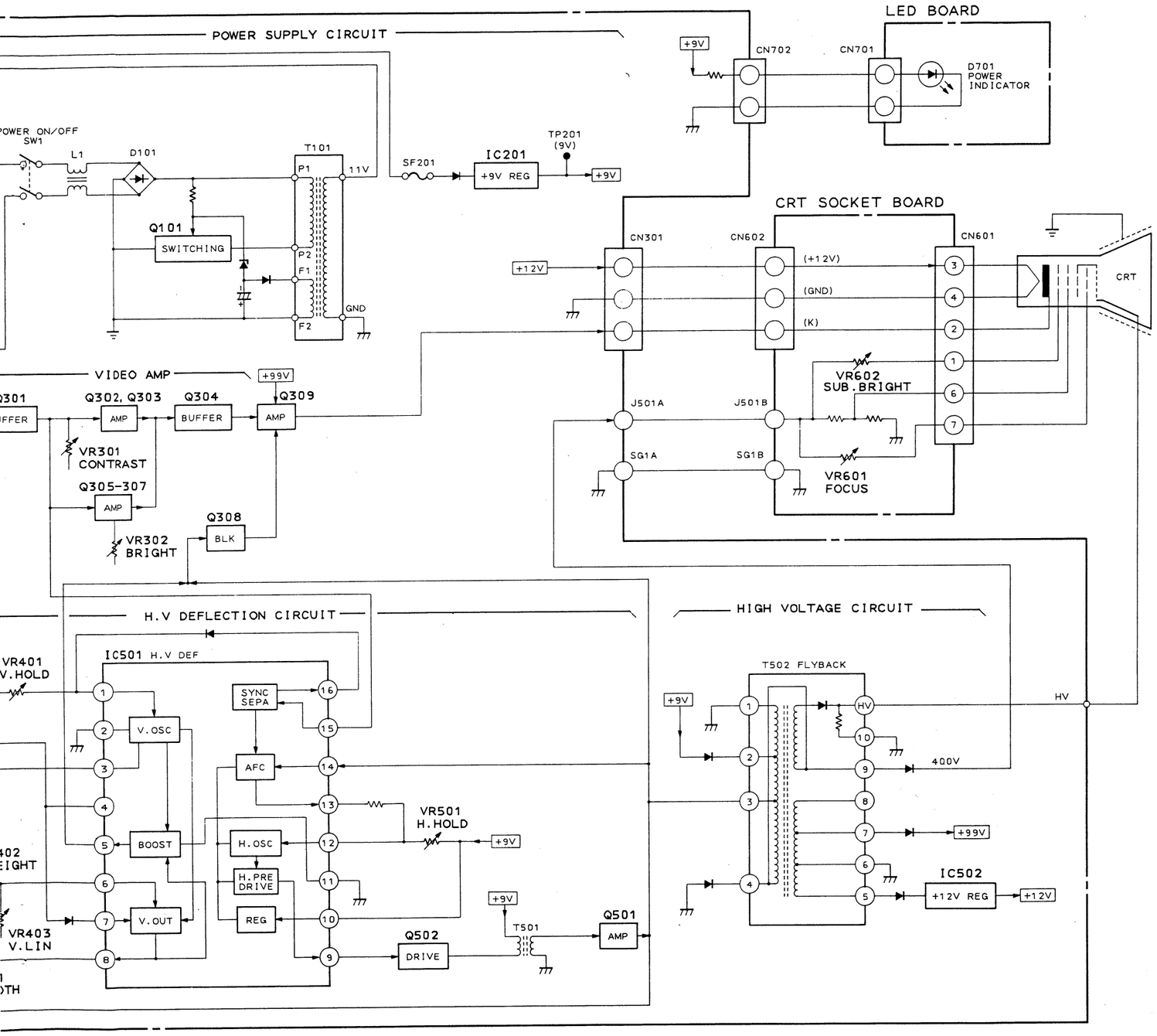
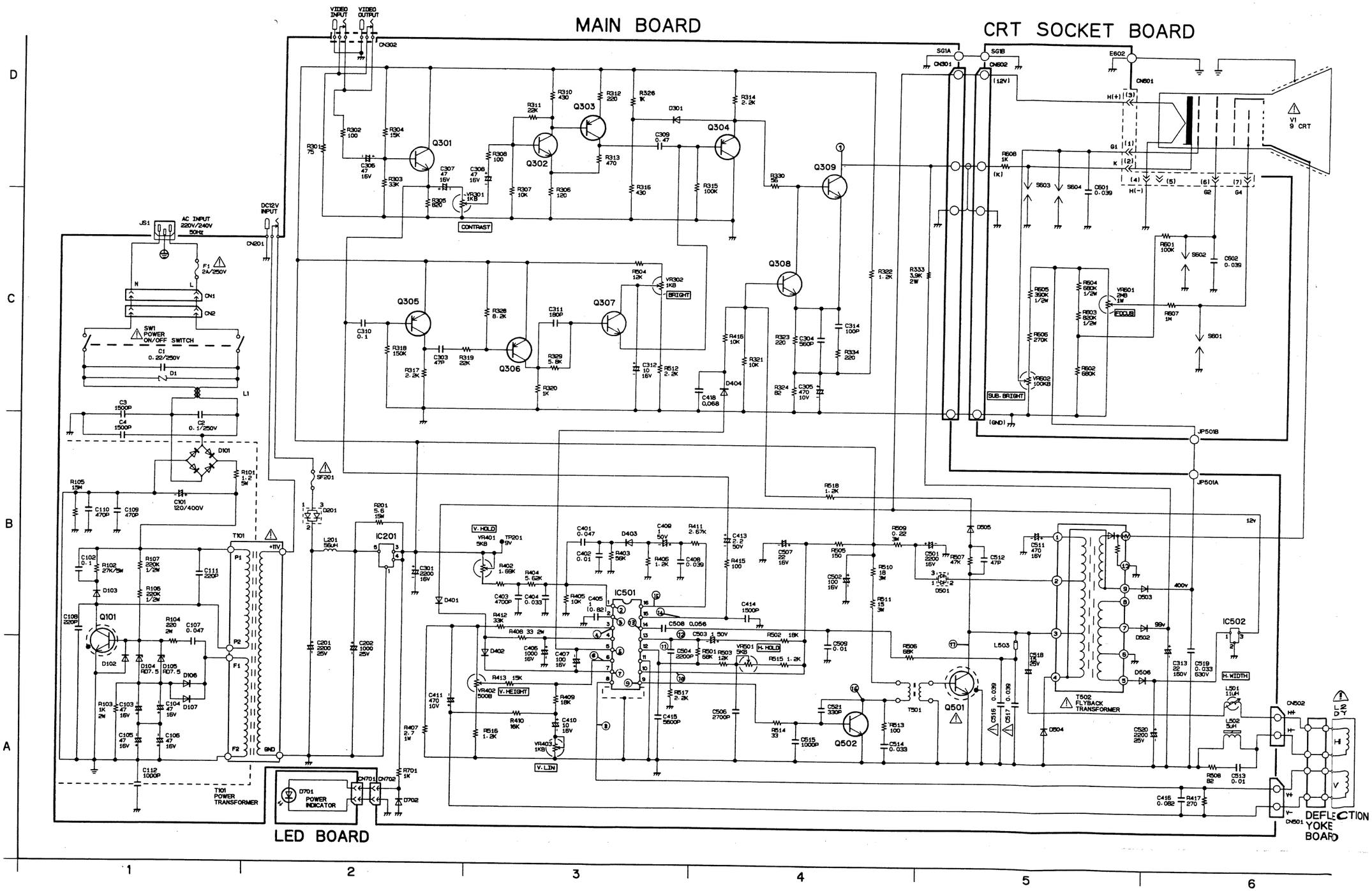


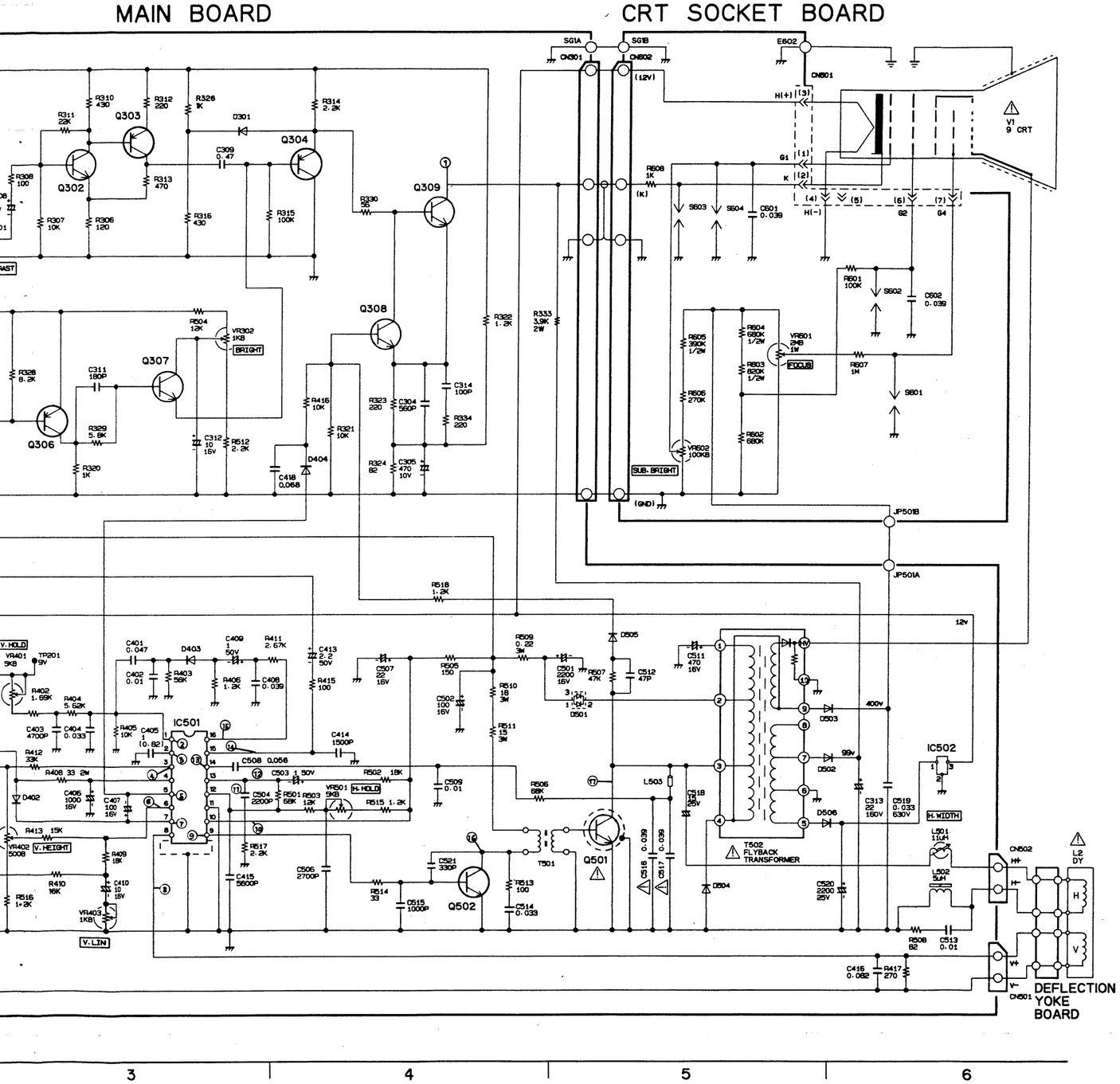
BLOCK DIAGRAM



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM



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MAIN BOARD

IC201	B2
IC501	A3
IC502	B6
Q101	A1
Q301	D2
Q302	D3
Q303	D3
Q304	D4
Q305	C2
Q306	C3
Q307	C3
Q308	C4
Q309	D4
Q501	A5
Q502	A4
D1	C1
D101	B1
D102	A1
D103	B1
D104	A1
D105	A1
D106	A1
D107	A1
D201	B2
D301	D3
D401	B2
D402	A3
D403	B3
D404	C4
D501	B5
D502	B6
D503	B6
D504	A5
D505	B5
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D702	A2

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LED BOARD

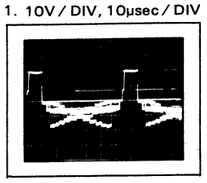
D701	A2

PRODUCT SAFETY NOTICE

COMPONENT IDENTIFIED WITH THE "⚠" MARK HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN SERVICING ANY OF THESE COMPONENTS, IT IS ESSENTIAL THAT ONLY MANUFACTURE'S SPECIFIED PARTS BE USED.

‹Wave Forms›

1. 10V / DIV, 10μsec / DIV



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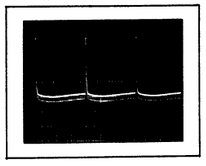
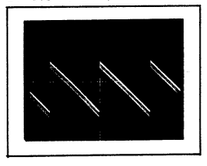
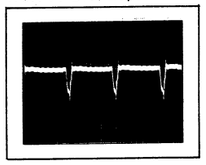


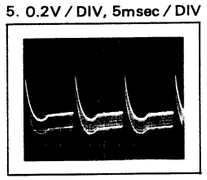
3. 0.5V / DIV, 5msec / DIV



4. 0.1V / DIV, 20μsec / DIV



5. 0.2V / DIV, 5msec / DIV



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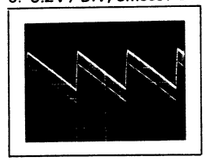

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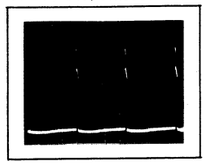
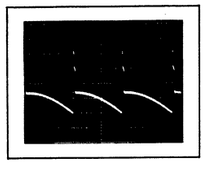
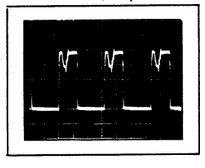


8. 5V / DIV, 5msec / DIV



9. 0.2V / DIV, 20μsec / DIV



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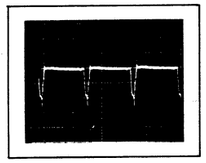

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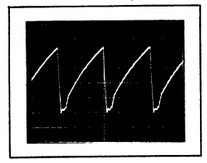
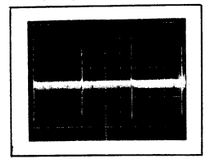
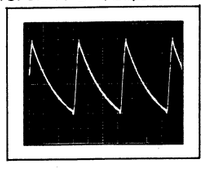


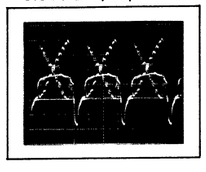
12. 0.5V / DIV, 5msec / DIV



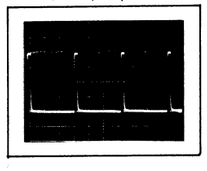
13. 0.2V / DIV, 20μsec / DIV



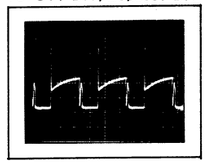
14. 0.5V / DIV, 20μsec / DIV



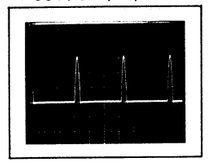
15. 2V / DIV, 20μsec / DIV



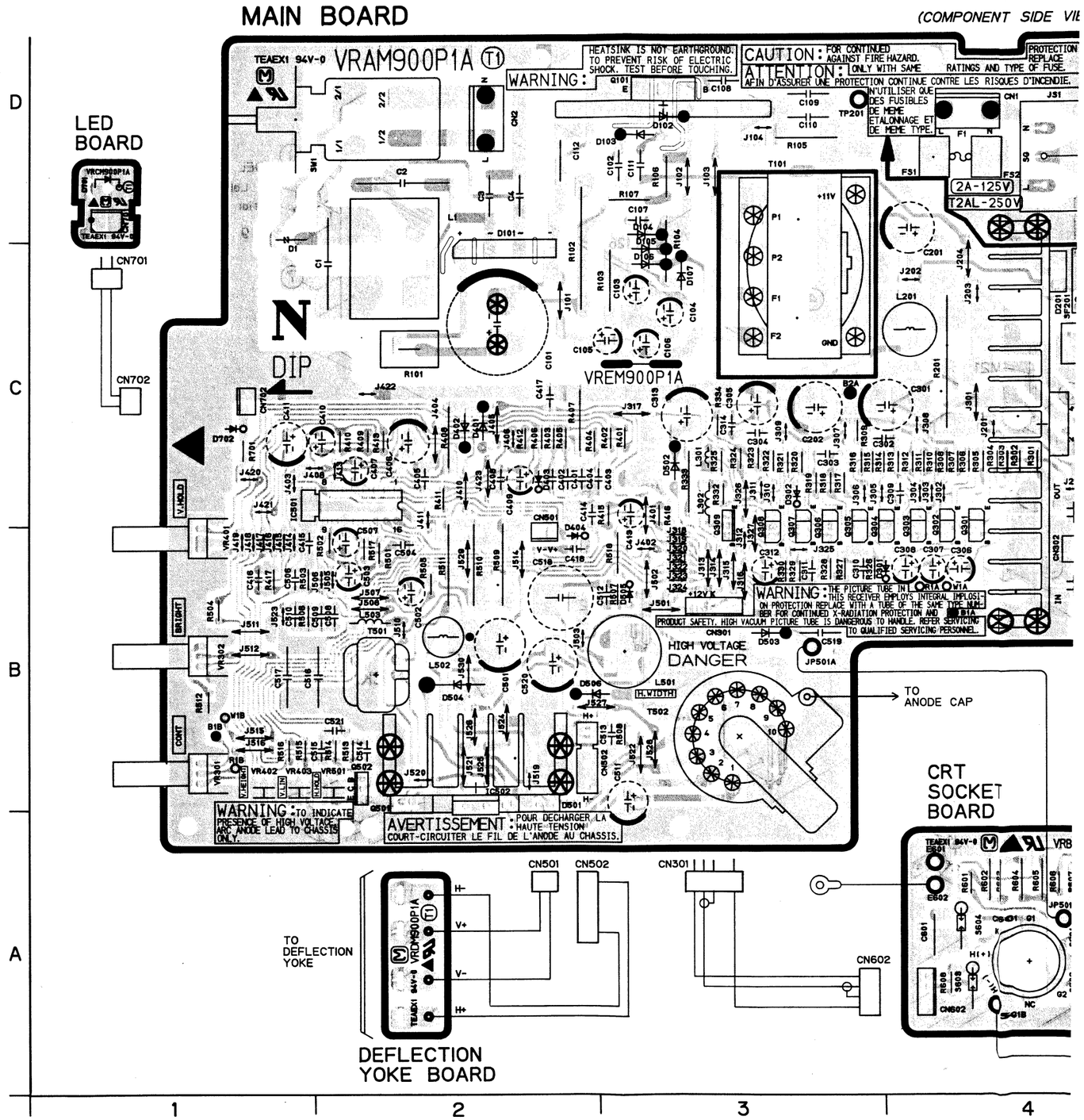
16. 5V / DIV, 20μsec / DIV



17. 50V / DIV, 20μsec / DIV



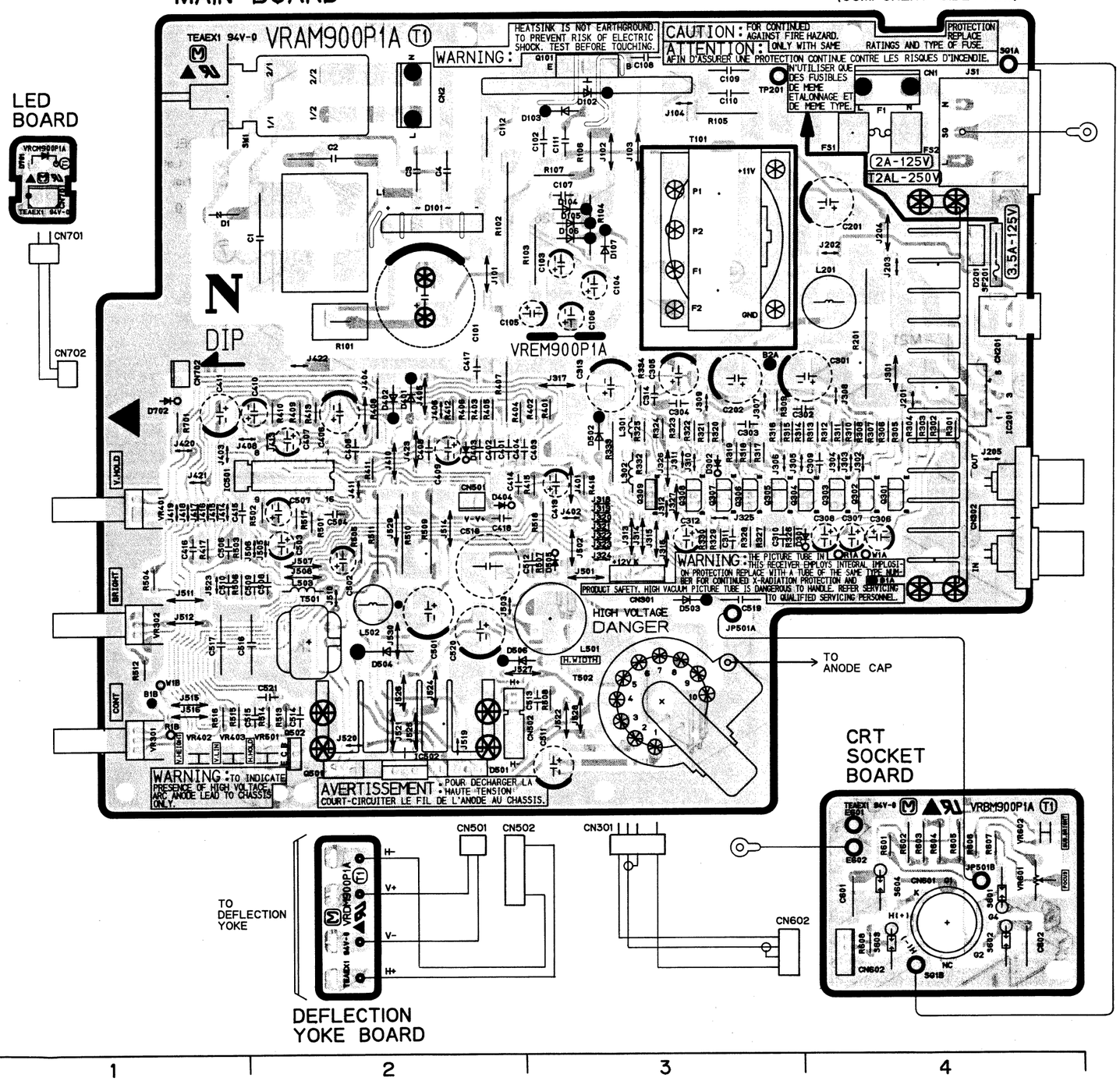
CONDUCTOR VIEW



CONDUCTOR VIEW

MAIN BOARD

(COMPONENT SIDE VIEW)


LED BOARD
CN701
CN702
VRCM900P1A
TEAEX1 94V-0
VRAM900P1A (T1)
WARNING:
HEATSINK IS NOT EARTHGROUND. TO PREVENT RISK OF ELECTRIC SHOCK. TEST BEFORE TOUCHING.
CAUTION: FOR CONTINUED AGAINST FIRE HAZARD.
ATTENTION: ONLY WITH SAME RATINGS AND TYPE OF FUSE.
AFIN D'ASSURER UNE PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE.
PROTECTION REPLACE
N'UTILISER QUE DES FUSIBLES DE MEME ETALONNAGE ET DE MEME TYPE.
2A-125V
T2AL-250V
(3.5A-125V)
N
DIP
VREM900P1A
WARNING: THE PICTURE TUBE IN THIS RECEIVER EMPLOYS INTEGRAL IMPLOSION PROTECTION REPLACE WITH A TUBE OF THE SAME TYPE NUMBER FOR CONTINUED X-RADIATION PROTECTION AND
PRODUCT SAFETY. HIGH VACUUM PICTURE TUBE IS DANGEROUS TO HANDLE. REFER SERVICING TO QUALIFIED SERVICING PERSONNEL.
HIGH VOLTAGE DANGER
TO ANODE CAP
WARNING: TO INDICATE PRESENCE OF HIGH VOLTAGE, ARC ANODE LEAD TO CHASSIS ONLY.
AVERTISSEMENT: POUR DECHARGER LA HAUTE TENSION COURT-CIRCUITER LE FIL DE L'ANODE AU CHASSIS.
CRT SOCKET BOARD
VRBM900P1A (T1)
CN501
CN502
CN301
CN602
TO DEFLECTION YOKE
H-
V+
V-
H+
DEFLECTION YOKE BOARD

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MAIN BOARD

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Q301	B4
Q302	B4
Q303	B4
Q304	B4
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Q306	B3
Q307	B3
Q308	B3
Q309	B3
Q501	B2
Q502	B2
D1	C1
D101	C2
D102	D3
D103	D3
D104	C3
D105	C3
D106	C3
D107	C3
D201	C4
D301	B3
D401	C2
D402	C2
D403	C2
D404	B2
D501	B2
D502	C3
D503	B3
D504	B2
D505	B3
D506	B2
D702	C1

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LED BOARD

D701	D1

<Voltages>

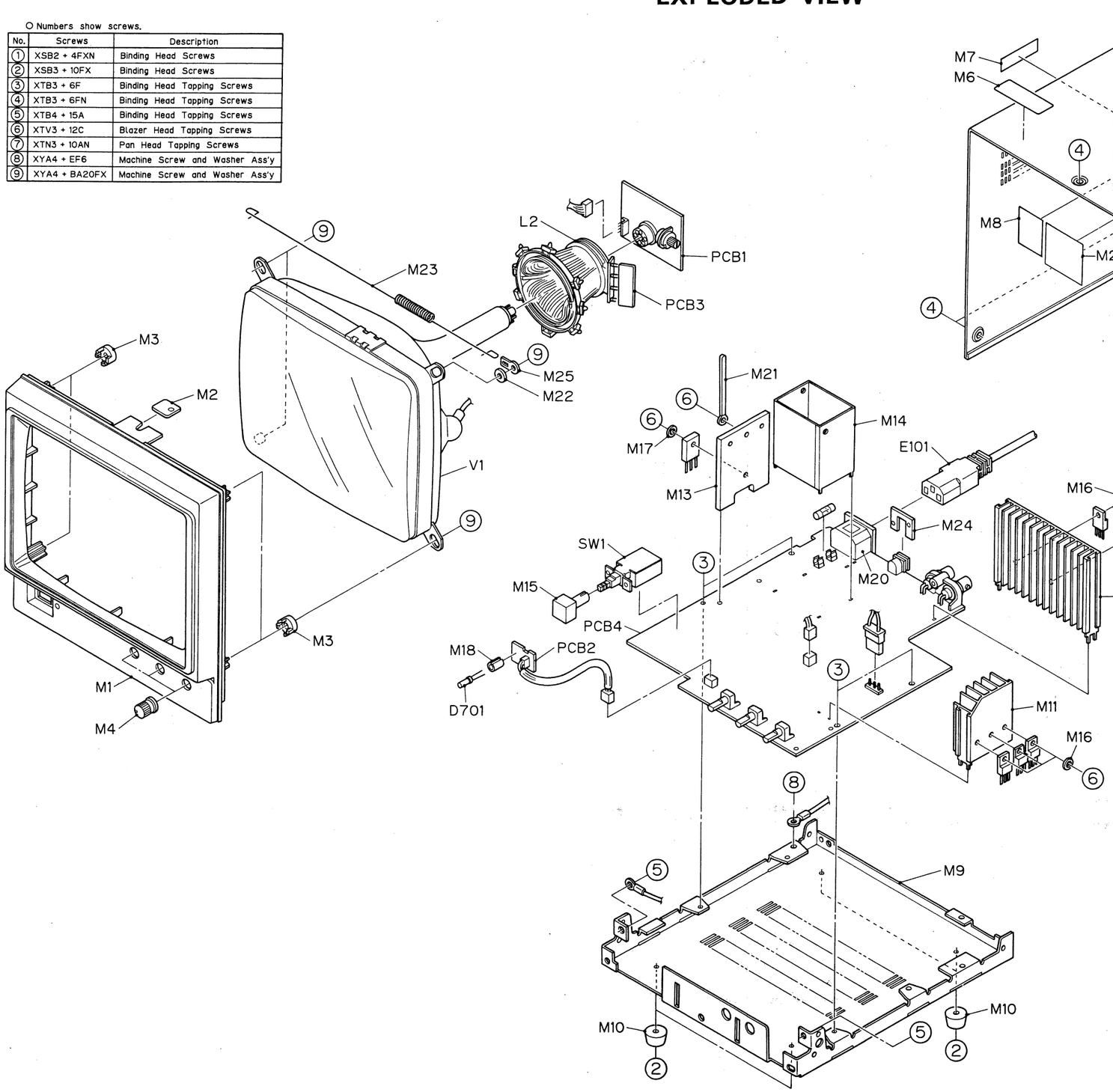
	B	C	E
Q101	0	131.0	0
301	5.9	9.0	5.2
302	2.0	6.9	1.3
303	6.9	4.4	7.5
304	1.2	0	1.9
305	8.3	8.4	9.0
306	8.9	0	8.9
307	0	1.9	1.2
308	0.9	1.8	1.3
309	1.8	96.6	1.3
501	0	13.6	0
502	0.3	7.1	0

	IC201	IC501	IC502
Pin 1	0	4.4	14.7
2	4.3	6.4	0
3	9.0	3.5	11.9
4	9.0	10.8	
5	10.8	1.4	
6		1.9	
7		10.8	
8		6.1	
9		0.3	
10		6.9	
11		0	
12		3.6	
13		3.3	
14		2.3	
15		4.0	
16		0.9	

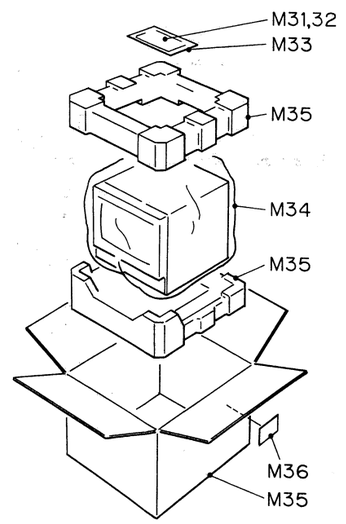
EXPLODED VIEW

○ Numbers show screws.

No.	Screws	Description
①	XSB2 + 4FXN	Binding Head Screws
②	XSB3 + 10FX	Binding Head Screws
③	XTB3 + 6F	Binding Head Tapping Screws
④	XTB3 + 6FN	Binding Head Tapping Screws
⑤	XTB4 + 15A	Binding Head Tapping Screws
⑥	XTV3 + 12C	Blazer Head Tapping Screws
⑦	XTN3 + 10AN	Pan Head Tapping Screws
⑧	XYA4 + EF6	Machine Screw and Washer Ass'y
⑨	XYA4 + BA20FX	Machine Screw and Washer Ass'y



PACKAGING

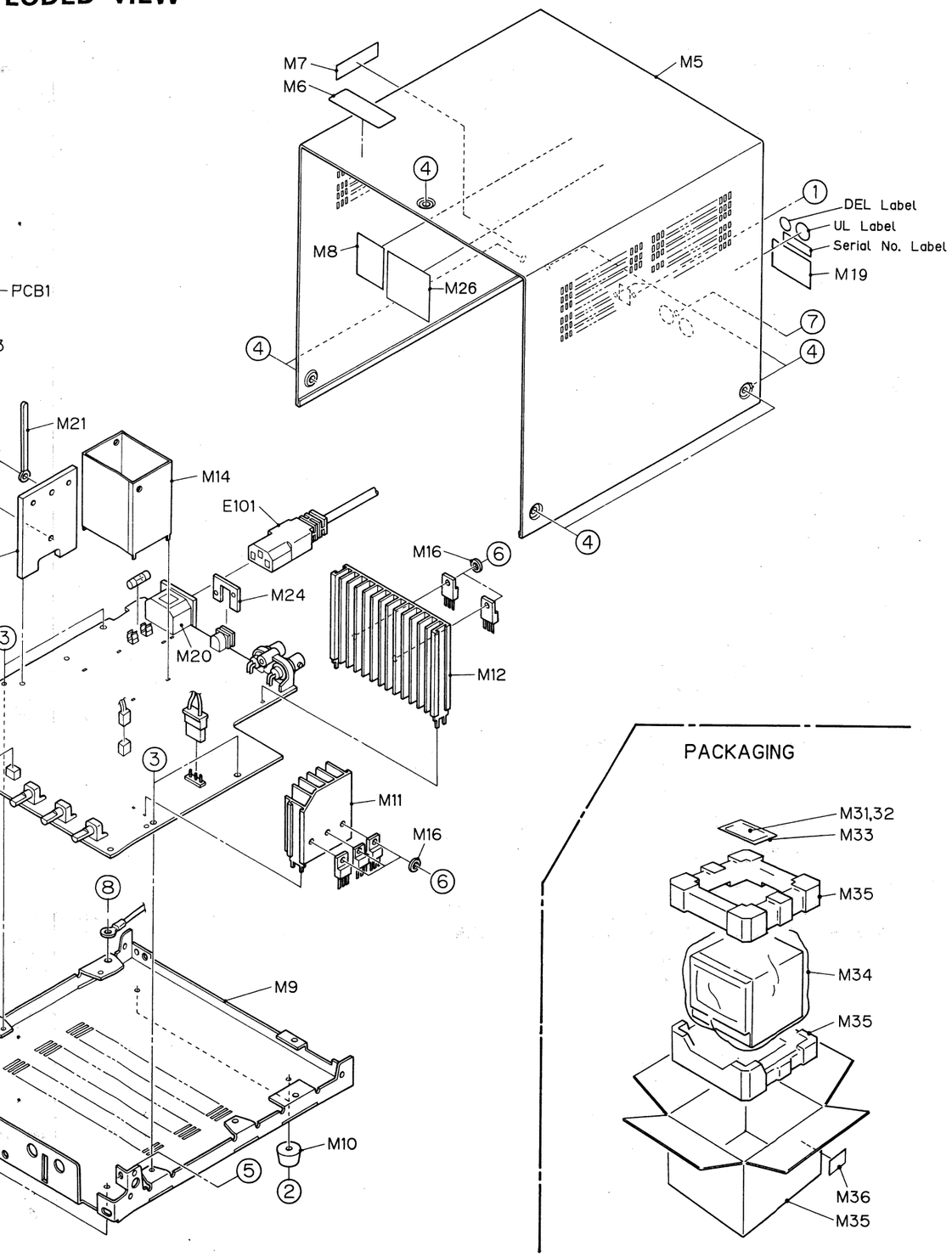


Important Notice

1. Components identifie
   When replacing any c
2. RTL : Retention Time

REF.NO.		PART NC
		MI
V1	<!>	MI0908P4A
L2	<!>	YWYS3446E
E101	<!>	YWTSX4C6'
		YWTSX4C6'
		YWTSX4C6'
M1		YWV5BA01
M2		YWTUC4C0
M3		YWTMM4C
M4		TWTBX4C0(
M5		TXAKA1BM
M6		YWS-XEGRI
M7		YFV7MB00S
M8		YWS-XEGRI
M9		YWTUX4C0
M10		YWV5350W
M15		YWTBX4C0
M19		YWV7QA31
		YWV7QA31
		YWV7QA31
M22		YWXWG4F
M23		YWV5350W
M24		YWV5350P
M25		YWTJE811C
M26		YWTQF4C0
		CRT
PCB1	(RTL)	YWVKBM9
R601		ERDS2TJ10
R602		ERDS1TJ68
R603		ERDS1TJ82
R604		ERDS1TJ68
R605		ERDS2TJ39
R606		ERDS2TJ27
R607		ERDS2TJ10
R608		ERDS2TJ10
VR601		EVMJ6U10I
VR602		TAV1028B1
C601,602		ECQE2393T
SB601-604		YFAG20PC'
CN601		TJS25640V
CN602		TJS878204

PLODED VIEW



REPLACEMENT PARTS LIST

Important Notice

1. Components identified by "<!>" mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. RTL : Retention Time Limited,

REF.NO.	PART NO.	DESCRIPTION
MISCELLANEOUS		
V1 <!>	MI0908P4AU	Cathode Ray Tube
L2 <!>	YWYS34468T1	Deflection Coil
E101 <!>	YWTSX4C6118	AC Power Cord for WV-BM900/A
	YWTSX4C6130	AC Power Cord for WV-BM900/B
	YWTSX4C6119	AC Power Cord for WV-BM900/G
M1	YWV5BA0104A1	Escutcheon
M2	YWTUC4C0088	Holding Cover
M3	YWTMM4C0049	Spacer
M4	TWTBX4C0014	Control Knob
M5	TXAKA1BM900	Upper Cover
M6	YWS-XEGRB03A	Caution Label for WV-BM900/G
M7	YFV7MB0099A4	Screw Caution Label
M8	YWS-XEGRB04	Safety Label
M9	YWTUX4C0056	Bottom Bracket
M10	YWV5350WB01	Rubber Foot
M15	YWTBX4C0015	Power Switch Knob
M19	YWV7QA3115A4	Main Label for WV-BM900/A
	YWV7QA3113A4	Main Label for WV-BM900/B
	YWV7QA3114A4	Main Label for WV-BM900/G
M22	YWXWG4F10	Washer
M23	YWV5350WM01	Spring
M24	YWV5350PLM5	Mounting Plate
M25	YWTJE81103	Mounting Angle
M26	YWTQF4C0278	X-RAY Label for WV-BM900/G
CRT SOCKET BOARD		
PCB1 (RTL)	YWVKBM900P1A	Printed Circuit Board Assy
R601	ERDS2TJ104	Carbon 100K ohms 1/4W
R602	ERDS1TJ684	Carbon 680K ohms 1/4W
R603	ERDS1TJ824	Carbon 820K ohms 1/4W
R604	ERDS1TJ684	Carbon 680K ohms 1/4W
R605	ERDS2TJ394	Carbon 390K ohms 1/4W
R606	ERDS2TJ274	Carbon 270K ohms 1/4W
R607	ERDS2TJ105	Carbon 1M ohms 1/4W
R608	ERDS2TJ102	Carbon 1K ohms 1/4W
VR601	EVMJ6U10KB26	Variable Resistor 2M ohms
VR602	TAV1028B104	Variable Resistor 100K ohms
C601,602	ECQE2393TS	Plastic 0.039 µF
SB601-604	YFAG20PC122F	Braker
CN601	TJS25640V	Socket
CN602	TJS878204	4-pin Connector

REF.NO.	PART NO.	DESCRIPTION
LED BOARD		
PCB2 (RTL)	YWVKCM900P1A	Printed Circuit Board Assy
D701	YWL424HDT	LED
M18	YWE2400FR01	LED Holder
DEFLECTION YOKE BOARD		
PCB3 (RTL)	YWVKDM900P1A	Printed Board
MAIN BOARD		
PCB4 (RTL)	YWVKEM900E1A	Printed Circuit Board Assy
IC201	YWSI3090C	IC
IC501	YWUPC1379C	IC
IC502	AN7812	IC
Q101	2SC4429-L	Transistor
Q301,302	2SD636-QRS	Transistor
Q303-306	2SB641-QR	Transistor
Q307,308	2SD636-QRS	Transistor
Q309	2SC2258	Transistor
Q501 <!>	2SD1274B	Transistor
Q502	2SC1567-RS	Transistor
D101	YWD3SBA60	Rectifier
D102	EU02ZV0	Diode
D103	ES01F	Diode
D104	YWRD7.5FB1	Diode
D105	YWRD7.5FB1	Diode
D106,107	EU02ZV0	Diode
D201	YWFMU21S	Diode
D301	MA165	Diode
D401,402	EM01Z	Diode
D403,404	MA165	Diode
D501	YWFMU21S	Diode
D502,503	ES01F	Diode
D504	YWRU4ZLFT2	Diode
D505	MA165	Diode
D506	HER103T	Diode

REF.NO.	PART NO.	DESCRIPTION	
D702	MA4120H	Diode	
DS1	ERZC07DK471U	ZNR	
R101	ERF5TK1R2	Wire Wound	1.2 ohms 5W
R102	ERG5SJ273	Metal	27K ohms 5W
R103	ERG2SJ102	Metal	1K ohms 2W
R104	ERG2SJ221	Metal	220 ohms 2W
R105	ERC12ZGM156	Solid Resistor	15M ohms 1/2W
R106,107	ERD25FJ224	Carbon	220K ohms 1/4W
R201	ERF15ZYK5R6	Wire Wound	5.6 ohms 15W
R301	ERDS2TJ750	Carbon	75 ohms 1/4W
R302	ERDS2TJ101	Carbon	100 ohms 1/4W
R303	ERDS2TJ333	Carbon	33K ohms 1/4W
R304	ERDS2TJ153	Carbon	15K ohms 1/4W
R305	ERDS2TJ821	Carbon	820 ohms 1/4W
R306	ERDS2TJ121	Carbon	120 ohms 1/4W
R307	ERDS2TJ103	Carbon	10K ohms 1/4W
R308	ERDS2TJ101	Carbon	100 ohms 1/4W
R310	ERDS2TJ431	Carbon	430 ohms 1/4W
R311	ERDS2TJ223	Carbon	22K ohms 1/4W
R312	ERDS2TJ221	Carbon	220 ohms 1/4W
R313	ERDS2TJ471	Carbon	470 ohms 1/4W
R314	ERDS2TJ222	Carbon	2.2K ohms 1/4W
R315	ERDS2TJ104	Carbon	100K ohms 1/4W
R316	ERDS2TJ431	Carbon	430 ohms 1/4W
R317	ERDS2TJ222	Carbon	2.2K ohms 1/4W
R318	ERDS2TJ154	Carbon	150K ohms 1/4W
R319	ERDS2TJ223	Carbon	22K ohms 1/4W
R320	ERDS2TJ102	Carbon	1K ohms 1/4W
R321	ERDS2TJ103	Carbon	10K ohms 1/4W
R322	ERDS2TJ122	Carbon	1.2K ohms 1/4W
R323	ERDS2TJ221	Carbon	220 ohms 1/4W
R324	ERDS2TJ820	Carbon	82 ohms 1/4W
R326	ERDS2TJ102	Carbon	1K ohms 1/4W
R328	ERDS2TJ822	Carbon	8.2K ohms 1/4W
R329	ERDS2TJ562	Carbon	5.6K ohms 1/4W
R330	ERDS2TJ560	Carbon	56 ohms 1/4W
R333	ERG2SJ392	Metal	3.9K ohms 2W
R334	ERDS2TJ221	Carbon	220 ohms 1/4W
R402	ER0S2CKF1691	Metal	1.69K ohms
R403	ERDS2TJ563	Carbon	56K ohms 1/4W
R404	ER0S2CKF5621	Metal	5.62K ohms
R405	ER0S2CKF1002	Metal	10K ohms 1/4W
R406	ERDS2TJ122	Carbon	1.2K ohms 1/4W
R407	ERX1SJ2R7P	Metal	2.7 ohms 1W
R408	ERG2SJ330	Metal	33 ohms 2W
R409	ERDS2TJ183	Carbon	18K ohms 1/4W
R410	ER0S2CKF1602	Metal	16K ohms 1/4W
R411	ER0S2CKF2671	Metal	2.67K ohms 1/4W
R412	ER0S2CKF3302	Metal	33K ohms 1/4W
R413	ERDS2TJ153	Carbon	15K ohms 1/4W
R415	ERDS2TJ101	Carbon	100 ohms 1/4W
R416	ERDS2TJ103	Carbon	10K ohms 1/4W
R417	ERDS2TJ271	Carbon	270 ohms 1/4W
R501	ERDS2TJ683	Carbon	68K ohms 1/4W
R502	ERDS2TJ183	Carbon	18K ohms 1/4W

REF.NO.	PART NO.	DESCRIPTION	
R503,504	ERDS2TJ123	Carbon	12K ohms 1/4W
R505	ERDS2TJ151	Carbon	150 ohms 1/4W
R506	ERDS2TJ683	Carbon	68K ohms 1/4W
R507	ERDS2TJ473	Carbon	47K ohms 1/4W
R508	ERDS2TJ820	Carbon	82 ohms 1/4W
R509	ERX3SJR22	Metal	0.22 ohms
R510	ERG3SJ180	Metal	18 ohms 3W
R511	ERG3SJ150	Metal	15 ohms 3W
R512	ERDS2TJ222	Carbon	2.2K ohms 1/4W
R513	ERDS2TJ101	Carbon	100 ohms 1/4W
R514	ERDS2TJ330	Carbon	33 ohms 1/4W
R515,516	ERDS2TJ122	Carbon	1.2K ohms 1/4W
R517	ERDS2TJ222	Carbon	2.2K ohms 1/4W
R518	ERDS2TJ122	Carbon	1.2K ohms 1/4W
R701	ERDS2TJ102	Carbon	1K ohms 1/4W
VR301,302	EVUE20F25B13	Variable Resistor	1K ohms
VR401	EVUE20F25B53	Variable Resistor	5K ohms
VR402	TAV1028B501	Variable Resistor	500 ohms
VR403	TAV1028B102	Variable Resistor	1K ohms
VR501	TAV1028B502	Variable Resistor	5K ohms
C1	ECQU2A224KH	Plastic	0.22 µF 250V
C2	ECQU2A104KH	Plastic	0.1 µF 250V
C3,4	ECKDWS152ME	Ceramic	1500 pF
C101	ECOS2GG121MT	Electrolytic	120 µF 400V
C102	ECQE2104KS	Plastic	0.1 µF 200V
C103-106	ECEA1CF470	Electrolytic	47 µF 16V
C107	ECQM1H473JZ	Plastic	0.047 µF 50V
C108	ECKD3D221KBN	Ceramic	220 pF
C109,110	ECKDWS471KB	Ceramic	470 pF
C111	ECKD3D221KBN	Ceramic	220 pF
C112	ECKD3A102KB	Ceramic	1000 pF 1KV
C201	ECEA1EFQ222	Electrolytic	2200 µF 25V
C202	ECEA1EU102	Electrolytic	1000 µF 25V
C301	ECEA1CGE222	Electrolytic	2200 µF 16V
C303	ECCF1H470JC	Ceramic	47pF 50V
C304	ECKR2H561KB	Ceramic	560 pF
C305	ECEA1AU471	Electrolytic	470 µF 10V
C306-308	ECEA1CU470	Electrolytic	47 µF 16V
C309	ECQV1H474JZ	Plastic	0.47 µF 50V
C310	ECQM1H104JZ	Plastic	0.1 µF 50V
C311	ECCF1H181JC	Ceramic	180 pF 50V
C312	ECEA1CUH100	Electrolytic	10 µF 16V
C313	ECEA2CG220S	Electrolytic	22 µF 160V
C314	ECCF2H101J	Ceramic	100 pF 150V
C401	ECQB1H473JZ	Plastic	0.047 µF 50V
C402	ECQB1H103JZ	Plastic	0.01 µF 50V
C403	ECQB1H472JZ	Plastic	4700 pF 50V
C404	ECQB1H333JZ	Plastic	0.033 µF 50V
C405	ECQV1H105JZ	Plastic	1 µF 50V

REF.NO.	PART NO.	DESCRIPTION
C406	ECEA1CU102	Electrolytic 1000 µF 16V
C407	ECEA1CU101	Electrolytic 100 µF 16V
C408	ECQB1H393JZ	Plastic 0.039 µF 50V
C409	ECEA1HU010	Electrolytic 1 µF 50V
C410	ECEA1CU100	Electrolytic 10 µF 16V
C411	ECEA1AU471	Electrolytic 470 µF 10V
C413	ECEA1HU2R2	Electrolytic 2.2 µF 50V
C414	ECQB1H152JZ	Plastic 1500 pF 50V
C415	ECQB1H562JZ	Plastic 5600 pF 50V
C416	ECQB1H823JZ	Plastic 0.082 µF 50V
C418	ECQB1H683JZ	Plastic 0.068 µF 50V
C501	ECEA1CGE222	Electrolytic 2200 µF 16V
C502	ECEA1CU101	Electrolytic 100 µF 16V
C503	ECEA1HU010	Electrolytic 1 µF 50V
C504	ECQB1H222JZ	Plastic 2200 pF 50V
C506	ECQB1H272JZ	Plastic 2700 pF 50V
C507	ECEA1CU220	Electrolytic 22 µF 16V
C508	ECQB1H563JZ	Plastic 0.056 µF 50V
C509	ECQB1H103JZ	Plastic 0.01 µF 50V
C511	ECEA1CF471	Electrolytic 470 µF 16V
C512	ECCF2H470J	Ceramic 47 pF 500V
C513	ECQB1H103JZ	Plastic 0.01µF 50V
C514	ECQB1H333JZ	Plastic 0.033 µF 50V
C515	ECKF1H102KB	Ceramic 1000 pF 50V
C516 <!>	ECQF4393JZ	Plastic 0.039 µF 400V
C517 <!>	ECQF4393JZ	Plastic 0.039 µF 400V
C518	ECEA1EW150Z	Electrolytic 15 µF 25V
C519	ECQE6333KZ	Plastic 0.033 µF 600V
C520	ECEA1EFQ222	Electrolytic 2200 µF 25V
C521	ECCF1H331J	Ceramic 330 pF
C601,602	ECQE2393JS	Plastic 0.039 µF 200V
L1	ELF18D650PT	Coil
L201	ELC12E009	Coil 56 µH
L501	TLH4C60713D	Coil 11 µH
L502	ELH5L415	Coil 5 µH
L503	TSC925-4	Coil
T101 <!>	TLP4C60220G	Power Transformer
T501	YWTLH3412KT	Low Freq Transformer
T502 <!>	TLF4C60801M	Flyback Transformer
SW1 <!>	YWSDDFA3	Push Switch
F1 <!>	XBA2C20ET0A	Current Fuse 2A 240V
F201 <!>	SSFR3.5AF003	Current Fuse 3.5A
JK201	EC07400010	Jack
JS1	TJT4C6601	Socket
E1	TJC3316	Fuse Holder
TP201	TEL3029	Test Point
CN302	P2255	BNC Connector
CN501	YWTJS878202J	2-pin Connector
CN502	YWTJS755103J	3-pin Connector
CN702	YWTJS878202J	2-pin Connector

REF.NO.	PART NO.	DESCRIPTION
M11	YWTUC4C00404	Heat Sink A
M12	YWTUC816344T	Heat Sink B
M13	YWTUC4C0091	Heat Sink C
M14	YWTUC4C0090	Shield Parts
M16	YWXWGT40660	Washer A
M17	YWXWG3F10	Washer B
M20	YWTUC85388T	Socket Cover
M21	YWTUX807012	Mounting Angle

ACCESSORY PARTS/PACKAGING PARTS

M31	YWV8QA3148AN	Operating Instructions
M33	YWTQE4C	Polyethylene Bag
M34	XZB48X57C05A	Polyethylene Bag
M35	YWV9CA2175AN	Packaging Assy
M36	YWTQF81259A	Packaging Label

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ORDER NO. AVS0008286P8

Parts Change Notice

Subject : Part Number Change

Model No. WV-BM900

Effective From : ALL

Please revise the original parts list in the Service Manual to conform to the change(s) shown herein.
If new part numbers are shown, be sure to use them when ordering parts.

Reason for Change	+ The circled item indicates the reason. If no marking, see the Notes in the bottom column.
1. Improve performance	
2. Change of material or dimension	
3. To meet approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
(8) Other	

Interchangeability Code	++ The circled item indicates the interchangeability. If no marking, see the Notes in the bottom column.	
	Parts / Set Production	
A	Original → Early New → Late	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
B	Original → Early New → Late	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
(C)	Original → Early New → Late	New parts only may be used in early or late production sets. Stock new parts.
D	Original → Early New → Late	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
E	Other	

Part Number Parts identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Parts identified by o mark are new parts used from this Parts Change Notice.

Ref No.	Original Part No.	New Part No.	Notes (+, ++)	Part Name & Descriptions	Price
MISCELLANEOUS					
L2	YWYS34468T1	YS34468T1	8, C	Deflection Coil	

File this Parts Change Notice with your copy of the Service Manual.

Panasonic

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